REEL # 9
Gas'kova, V.L.

UDC 669.35'295'6'26:621.315.5(088.8)

USSR

FEDOROV, V. N., ROZENBERG, V. M., MUKHIN, N. I., GAS'KOVA, V. L., KOZHEVNIKOV, V. I., MATVEYEV, Yu. A., and POKROVSKAYA, G. N., State Scientific Research and Planning Institute of Alloys and Treatment of Nonferrous Metals

"Copper Base Alloy"

USSR Authors' Certificate No 263157, Cl. 40 b, 9/00, (C22c), filed 19 Nov 68, published 29 May 70 (from RZh-Metallurgiya, No 12, Dec 70, Abstract No 12 I849 P by A. ZIL'BERMAN)

Translation: An alloy is suggested which differs from known alloys in its lowered Ti and Sn content and which is characterized by the following com- position (in %): Ti 0.03-0.15, Sn 0.1-0.25, Cr 0.05-0.6 and the remainder Cu. After hardening, cold deformation due to drawing, and tempering, the alloy has σ_B 60 kg/sq mm, δ 4%, and conductivity 70% that of Cu. The alloy can be successfully employed as a current-carrying conductor.

1/1

UNCLASSIFIED   PROCESSING DATE--27NOV70
TITLE--COPPER BASE ALLOY -U-

AUTHOR-(05)-FEDOROV, V.N., ROZENBERG, V.M., MUKHIN, N.I., GASKOVA, V.L.,
   KOZHEVNIKOV, V.I.
COUNTRY OF INFO--USSR

SOURCE--U.S.S.R. 263,157
REFERENCE--OTKRYTIYA, IZOBRET., PROM. OBRAZTSY, TOVARNYE ZNAKI 1970,
DATE PUBLISHED--04FEB70

SUBJECT AREAS--MATERIALS

TOPIC TAGS--COPPER BASE ALLOY, METALLURGIC PATENT, TITANIUM CONTAINING
   ALLOY, TIN CONTAINING ALLOY, CHROMIUM CONTAINING ALLOY

CONTROL MARKING--NO RESTRICTIONS

DOCUMENT CLASS--UNCLASSIFIED
PROXY REEL/FRAME--3003/1057   STEP NO--UR/0482/70/000/000/0000/0000

CIRC ACCESSION NO--AA0130092
                UNCLASSIFIED

CIRC ACCESSION NO--AA0130092
ABSTRACT/EXTRACT--(U) GP-0- ABSTRACT.   TO RAISE THE COND. OF A CU BASED
  ALLOY WITHOUT LOWERING ITS STRENGTH, IT HAS THE FOLLOWING COMPN.:   TI
  0.03-0.15, SN 0.1-0.25, CR 0.05-0.6PERCENT, AND CU THE REMAINDER.
  FACILITY: STATE SCIENTIFIC RESEARCH AND DESIGN INSTITUTE OF ALLOYS AND
PROCESSING OF NONFERROUS METALS.

UNCLASSIFIED

GASMAN, A.S.

Microelectronics

MICROELECTRONICS

Excerpts from Russian-language book edited by F. V. Lukin:
Mikroelektronika, No 5, 1972, Sovetskoye Radio Publishing House,
Moscow, UDC 621:382:621.396.6-181.5.

CONTENTS

- a -

[I - USSR - F]

UDC 62-523.8.535.8:681.2

Commutable Functional Device of "Scaniator" Type in System for the Optoelectronic Processing of Information. Her-kovskaya, K.F. and Podlankin, B.G. In the Collection Mikro-elektronika, edited by T.V. Lukin, No 5, Sovetskoye Radio Publishing House, 1972.

At the present time the most promising class of opto-electronic devices apparently is the class of multichannel matrix optrons, in which optical and electrical contacts are used not only inside the unit cells "irradiator-photoreceiver" but also inside the irradiating and photoreceiver matrices. The replacement of "pictures", synthesized on the irradiating matrix in the form of irradiating configurations and on the photoreceiver matrix in the form of configurations of photo-sensitive elements permits the processing of information si-multaneously along numerous channels and to a theoretical increase in speed of response of the computers.

As the semiconductor structure, convenient for synthe-sis of the above "pictures" both on the irradiating and on the photoreceiver matrices or panels with distributed param-eters, the article suggests a scaniator.

Assuming the final optical convertor in the form of a sequence of shaped electrical impulses permits elimination of one of the most substantial disadvantages in analog com-puters, i.e., their low accuracy. The accuracy of conversion on the scaniators is determined by the number of unit optrons in the commutable matrices.

Examples are given for carrying out the operations of addition, division, expansion into a series, raising to a power, and filtration on models of discrete scaniators.

The theoretical possibilities of such devices are eval-uated.

The article contains 7 figures and 29 bibliographic references.

UDC 621.382.32

Influence of Radiation Emission on the Components of MDP Integrated Circuits. Karmazinsky, A.N., Gasparyan, A.S., and Baykov, V.D. In the Collection Mikroelektronika, edited by T.V. Lukin, No 5, p 66, Sovetskoye Radio Publishing House, 1972.

This article examines the basic physical effects generated in MDP transistors during irradiation. The influence of these effects are described on the degradation of the parameters of the MDP transistors. Formulas are given for computation of the volt-ampere characteristics during irradiation. The radiational resistance of the integrated circuits on bipolar and MDP transistors is discussed.

The article contains 5 figures, 1 table, and 15 bibliographic references.

UDC 621.396.6-181.5
681.128.14-518.5

A Method of Computing Major Integrated Circuits on MDP Transistors With Supplementing Types of Conductivity. Bolik, V.N. and Gordeyev, B.K.   In the Collection Mikroelektronika, edited by F.V. Lukin, No 5, P 79, Sovetskoye Radio Publishing House, 1972.

The article concerns the computation and optimization of major integrated circuits on supplementing MDP transistors. Optimization criteria for major integrated circuits are suggested.

It is shown that the problem of computing major integrated circuits can be reduced to determining the minimum of the linear function of renuable (determined) parameters of the major integrated circuit in the region of the determination, whose boundaries are nonlinear and have a statistical scatter. The algorithms developed for solving this problem by computation on a computer are cited.

The article contains 11 figures and 11 bibliographic references.

UDC 621.382.6

The Influence of Geometric Dimensions of Active Components on Speed of Response of Micropower Transistor-Transistor logic of integrated Circuits. Belyaev, Yu.N., Ismailov, G.G. and Lubashevskiy, A.V. In the Collection Mikroelektronika, edited by F.V. Lukin, No 5, P 98, Sovetskoye Radio Publishing House, 1972.

On the basis of experimental data and from the geometric dimensions of transistor structures a computation is given of the capacitances per unit of area of the end and side surfaces of three transistor contacts. It is shown that the speed of response of the micropower TTL of the integrated circuits to a significant degree is determined by

-7-

USSR

UDC 621.373

GASOV, N. G., KROKHIN, O. N., and SKLIZKOV, G. V., order of Lenin Physics Institute imeni P. N. Lebedev

"Investigation of the Heating and Scattering Dynamics of a Plasma Formed by High-Power Laser Beam Focussed on a Substance"

Moscow, Trudy Ordena Lenina Fizicheskogo Instituta imeni P. N. Lebedev, Akadamii Nauk SSSR: Kvantovaya Radiofizika (Works of the Order of Lenin Physics Institute imeni P. N. Levedev, Academy of Sciences USSR: Quantum Radiophysics), Vol. 52, 1970, p 171-236

[Note: This volume of the "Trudy", just as volume 31, is devoted to quantum radiophysics, specifically to state-of-the-art reviews in the three main trends in quantum electronics: injection lasers, interaction of high-power laser beams with substances, and the theory of laser dynamics. Another review in the same issue, by Yu. V. Afanas'yev and O. N. Krokhin, also deals with the interaction of laser beams with metals and other solids.]

Abstract: The authors review and summarize recent literature on dense, high-temperature plasmas generated by laser pulses striking solid targets. They note that the kinetic processes occuring during the heating of substances by focussed

1/6

USSR

GASOV, N. G., et al, Trudy Ordena Lenina Fizicheskogo Instituta imeni P. N.
Lebedev, Akadamii Nauk SSSR: Kvantovaya Radiofizika, Vol. 52, 1970, p 171-236

Q-modulated lasers have not been adequately explained. Moreover, contradictory
data have been reported on the ion energy and on the mass of the heated substance.
Heated plasmas have inhomogeneous structure, and density distributions of the
vaporized substance in space and time have not been measured directly. The front
of a plasma generated by a giant laser pulse can have a temperature of several
hundred ev and advances at the rate of $>10^7$ cm/sec, thereby acting as a shock
piston on the surrounding gas. Theoretically, sufficient energy can be injected
into a plasma to heat it to thermonuclear temperatures. The heating and expan-
sion processes of laser-generated plasma eruptions from opaque solids are studied
experimentally and theoretically. A spherical model of plasma expanding from a
small laser-irradiated spot is used and gasdynamic equations are derived in
analytical form. Plasma expansion dynamics were recorded with high-speed shadow
photography. The target was irradiated by a neodymium laser that had a single
rod 15 x 240 mm pumped by four IFP-5000 lamps. Kerr cells were used as shutters
for sychronization. The energy of the laser was >20 joules and pulse length
was <15 nsec. The experimental equipment, shown in a diagram, included gas and
ruby lasers in series to supply synchronized flash illumination, and a Mach-

2/6

USSR

Zerier interferometer was used to record the high-speed interferograms. Equipment and procedural errors are estimated. Shadographs were taken of a laser pulse having a front of ~ 4 nsecond striking a carbon target inside a vacuum chamber, showing that an opaque plasma eruption first spreads rapidly (3×10^6 cm/sec), followed by a complete standstill. Interference rings indicate large refraction gradients. The opaque region then disintegrates. In the later stages there is graphic evidence of streaming behind the target surface. If the shutter is removed, the laser heats the target and a vapor develops in a spherical area equivalent to the diameter of the laser spot and in 100 microsec expands to a distance of 1cm from the target surface. When the giant pulse strikes this dense cloud, a shock wave spreads into the cloud with the speed of 1.4×10^7 cm/sec in the direction of the beam and 1.2×10^7 cm/sec at right angles. Cloud densities up to 10^{18} cm^{-3} are obtained for lead, ebonite, organic glass, teflon, and aluminum foil. The formation and the behavior of the expanding spherical shock waves are discussed in detail. Expansion is found consistently to be faster in the direction of the incident beam, and turbulence grows in severity as the pressure in the vacuum chamber increases. For 5-micron thick aluminum foil a forward-moving spherical shock forms when the power is 3 joules, but at

3/6

USSR

GASOV, N. G., et al, Trudy Ordena Lenina Fizicheskogo Instituta imeni P. N. Lebedev, Akadamii Nauk SSSR: Kvantovaya Radiofizika, Vol. 52, 1970, p 171-236

6 joules the beam punctures the foil and the shock spreads in both directions along the beam. Experiments were conducted on colliding shock waves. Two beams were focussed on target surfaces placed at 90 deg to each other. Increased density and velocity were observed at the intersection of the shocks. Changing the angle of incidence of the beam does not alter the direction of the plasma eruption, which remains normal to the target surface. The motion of luminous shock fronts was studied for carbon and lithium deuteride targets. Luminosity is sufficiently bright for photography above 0.2 mm Hg pressure. The luminous front velocity decreases as pressure increases. The shock front moves ahead and away from the luminous front. As the pressure rises, the luminous wave forms much quicker, and at pressures of $\sim$20 mm Hg formation is practically instantaneous. The maximum velocity of 200 km/sec is reached in air at $\sim$1 mm Hg. The distribution of electron density is measured and the total mass of heated plasma is determined. From the crater in the target, typically $\sim$0.5 mm dia, approximately 10^{-5} of material is evaporated. But this means that at 6 joules each atom receives only 7.5 ev, which is too little to explain the speed of the shock wave. Therefore, interferograms were made and electron density was plotted

4/6

USSR

GASOV, N. G., et al, Trudy Ordena Lenina Fizicheskogo Instituta imeni P. N. Lebedev, Akadamii Nauk SSSR: Kvantovaya Radiofizika, Vol. 52, 1970, p 171-236

on a graph for different directions with respect to the laser beam. The electron density is found to be spherical and the mean energy per atom is 350 ev if half the energy is assumed to be available for heating. The electron density distribution in the shock wave is investigated in detail. Pressures on the target surface as well as the concentration and conductivity of the plasma in a transverse magnetic field were measured. The system used permits measurement of the plasma temperature and allows the assumption that electron and ion temperatures are approximately equal. A transverse magnetic field of 1.2 koe has no effect on the plasma jet, at least up to 2 cm from the target. In general, giant focussed laser pulses of 10^9 to 10^{12} watt/cm^2 evaporate a small spot on a solid target and heat the erupting plasma, which is spherical and elongated in the direction of the incident beam. Comparison of measurements indicates that the jet quickly reaches a constant value and the ion energy at the edge reaches several kev. This large ion energy results from the gasdynamic acceleration of the mass at the periphery. Upon reaching a maximum size during the pulse, the spherical plasma collapses. Analysis of shadographs indicates the existence of a dense neutral gas near the surface of the target that forms within $\sim$ 100 nsec after termination of the laser pulse. Density of the substance in the jet decreases from 2×10^{19} to 10^{17} to 10^{17} cm^{-3} in the interval of 0.5 to 3 mm from

5/6

USSR

the target. In the interval from 3 to 14 mm from the target, density drops from 10^{17} to 10^{12} cm^{-3}. It was found that considerable mass is ejected from the irradiated spot by a recoil mechanism when the pressure of the laser pulse is removed. This material is ejected with a velocity of $\sim 2 \times 10^5$ cm/sec. The possibility of using various target geometries to produce several shock waves to collide holds promise as a method of reaching higher plasma densities and temperatures. The high-speed multiple-frame shadow photography developed for the experiments is a powerful method for studying high-speed discharges and other processes. Also, the method permits study of the properties of high-density, high-pressure, and high-temperature process in substances without resorting to large-size high-pressure and high-temperature chambers. The authors thank V. A. Gribkov, N. A. Boyko, N. V. Morachevskiy, and S. I. Fedotov for data-gathering assistance and V. I. Frolov and B. V. Kruglov for help in constructing the experimental equipment. Orig. art. has 44 figs., 4 tables, and 73 refs.

6/6

MEDVEDEV, V. I., GASOV, V. M., Active Members of the Scientific and Technical
Society of Radio Engineering, Electronics and Communications imeni A. S. Popov

"An Algorithm ror Predicting the Time of Outer-Space Communications Periods With
Limited Transmitter Power"

Abstract: An algorithm is proposed for predicting the time of communications
periods between ground-based radio centers with transmitters of limited power
at any point on the earth's surface and artificial satellites circling the
earth in any orbit.

1/1

USSR   UDC 621.314.58(088.8)

POLEVIK, YU. A., GASPAROV, R.G., MOIN, V.S.

"Device For A-C Voltage Regulation"

USSR Author's Certificate No 261536, filed 19 Jun 68, published 25 May 70 (from RZh--Elektronika i yeye primeneniye, No 12, December 1970, Abstract No 12B518P)

Translation: For simplification and an increase of efficiency, a series network [tsepochka] is connected into the diagonal of an a-c rectifying bridge. The network consists of a choke coil and the primary winding of a pulse transformer, the secondary winding of which is connected into the control circuit of a thyristor. The network forms a control pulse for the thyristor in the negative half-cycle of the feed voltage, which assures equality of the conduction angles in both half-cycles and absence of d-c components in the load. 1 ill. A. Tarasov.

1/1

USSR   UDC: 621.375.024(088.8)

POLEVIK, Yu. A., GASPAROV, R. G., MALOLETNEV, A. V.

"A Reversible Half-Wave DC Amplifier"

USSR Author's Certificate No 259165, filed 5 May 68, published 23 Apr 70
(from RZh-Radiotekhnika, No 11, Nov 70, Abstract No 11D139 P)

Translation: This Author's Certificate introduces a reversible half-wave DC
amplifier which contains two diodes connected in parallel opposition, and a
choke. To simplify the control circuit and maintain linearity of the output
characteristic when it passes through zero, connected in parallel with the
load is a network made up of a resistor and the controlling winding of the
choke. The working winding of the choke is connected through a diode to the
controlling electrode of a controlled rectifier, and a half-wave pulse dura-
tion modulator is connected to the input of a second rectifier. E. L.

1/1
USSR   UDC: 621.375.4

Acc. Nr:
*АР*0048579 Abstracting Service:
CHEMICAL ABST. 5/70

Ref. Code:
UR0181

94470q Free-path length of current carriers in molybdenum.
Boiko, V. V.; Gasparov, V. A. (Sukhum. Fiz.-Tekh. Inst.,
Sukhumi, USSR). *Fiz. Tverd. Tela* 1970, 12(1), 310-12 (Russ).
The radio-frequency size effect method was used to det. the an-
isotropy of free path length. The deriv. with respect to magnetic
field of the amplitude of the size-effect line of plane-parallel plates
of Mo was plotted vs. their thickness, at 3.5 MHz and 4.2°K.
From the slope of this plot, the free path length can be detd.
                                                    A. Libackyj *J*

I B

1/

REEL/FRAME
19800304

18

GASPARYAN   A.M.

Acc. Nr: AP0047239

Ref. Code:
UR0606

PRIMARY SOURCE: Urologiya i Nefrologiya, 1970, Nr *1*,
pp *26-31*

DIAGNOSTIC SIGNIFICANCE OF RADIOISOTOPIC METHODS IN EXAMINATION OF PATIENTS SUFFERING FROM NEPHROLITHIASIS

N. K. Gorbadey, A. M. Gasparyan, L. I. Korytova

Summary

During dynamic examination of 348 patients suffering from nephrolithiasis the authors established the significance of isotopic methods of investigation in determination of the functional condition of the kidneys, depending on the severity and duration of the disease, the presence of concomitant complications and localization of the stone. On the basis of observations the authors recommend employment of isotopic methods in complex examination of urological patients.

1/1

DI 2

REEL/FRAME
19790746

GASPARYAN, A. M., Corresponding Member of the Armenian SSR Academy of
Sciences, SIRADEGYAN, S. Ye., AKOFYAN, R. Ye.

"Energy Expenditures on Phase Slipping During Vertical Movement of Two-Phase
Systems"

Abstract: A quantitative analysis is made of all airlift components on
which pressure or the work of the operating element -- compressed air -- is
spent. First, the case is considered where a stream of water lifts mono-
disperse solid particles into suspension; then the case is considered where
there are no particles of defined shape and size and the water raised into
suspension moves randomly in individual jets which are variable in time,
colliding along each other and with the walls of the apparatus, with air
bubbles, or an air stream; but the water falls (slips) with respect to the
air at some velocity c. The case is also considered where, together with
the water Q, solid particles with a volume W are also fed into the column.
Then the column gradually is filled with suspension and the suspension begins
to overflow.
1/2

USSR

The expenditures of work on holding the particles in the suspen. J state
(or on sliding of the phases) can always be behind by the initial given
V, ε, and $\phi = f(\phi)$. If, together with the air Q, water in a volume W is
also used in the column, transport of the water-air mixture in this same
manner is obtained also for this case:

$$P_1 Q_1 \ln(P_1 : P_2) = h_2 W_{\gamma 1} + (V_k^2 : 2g) W_{\gamma 1} + HF_{\phi \gamma 1} c + \Delta p_T (Q + W). \qquad (8)$$

Thus, the problem consists of finding the expenditures of wc-k in the slip-
ping of the phases -- the third time in the right-hand side of (8), for
which it is necessary to define the mean values of c (the volumetric con-
centration of particles in the suspension) and c. This is done by analogy
for the water and solid particle system.

2/2

1/2   019   UNCLASSIFIED   PROCESSING DATE--04DEC70
TITLE--PRIAPISM -U-

AUTHOR-(02)-GASPARYAN, A.M., VASILYEV, V.V.

COUNTRY OF INFO--USSR

SOURCE--UROL NEFROL 35(1): 65-71. 1970

DATE PUBLISHED--------70

SUBJECT AREAS--BIOLOGICAL AND MEDICAL SCIENCES

TOPIC TAGS--SPINAL CORD, REPRODUCTIVE SYSTEM

CONTROL MARKING--NO RESTRICTIONS

DOCUMENT CLASS--UNCLASSIFIED
PROXY FICHE NO----FD70/605016/C12 STEP NO--UR/0606/70/035/001/0065/0071

CIRC ACCESSION NO--AP0140685
                        UNCLASSIFIED

CIRC ACCESSION NO--AP0140685

ABSTRACT/EXTRACT--(U) GP-0- ABSTRACT. THE ETIOLOGIC FACTOR RESPONSIBLE
FOR HUMAN PRIAPISM IS DISCUSSED. MECHANICAL FACTORS, CHANGES IN THE
BLOOD, DAMAGE TO THE SPINE AND SPINAL CORD AND OTHER FACTORS ARE
CONSIDERED. THE INCIDENCE OF PRIAPISM AMONG DIFFERENT AGE GROUPS IS
EXAMINED. METHODS OF TREATING PRIAPISM, PARTICULARLY THOSE DEVELOPED IN
RECENT YEARS, ARE REVIEWED. THERE IS A BIBLIOGRAPHY WITH 108
REFERENCES.

UNCLASSIFIED

TOMOGRAPHY IN DIAGNOSING ORBITAL NEWGROWTHS

N. T. Adamov, G. I. Okulova, E. I. Gasparyan

Summary

Experience gathered by the authors gives ground to assert that laminar investigation of the orbit alongside with a more precise definition of topical data facilitates establishing the character of the neoplasm growth, of its morphological picture and of external outlines and shape. It also permits judgement to be formed as to the extent of the pathological process and the state of anatomic formations surrounding the orbit. The results of these investigations prompted the authors to conclude that tomographic examination of the orbit holds great promise in matters of diagnostication and may be recommended for wide use in medical practice.

///

REEL/FRAME
19800835

1/2   024   UNCLASSIFIED   PROCESSING DATE--04DEC70
TITLE--RELATION OF INITIAL SUPERMOLECULAR ORGANIZATION IN CRYSTALLINE
  POLYMER SYSTEMS TO THE ORGANIZATION PRODUCED BY STRETCHING -U-
AUTHOR-(02)-BARANOV, V.G., GASPARYAN, K.A.

COUNTRY OF INFO--USSR

SOURCE--J. POLYM. SCI., PART A-2 1970, 8, 1015-26

DATE PUBLISHED-------70

SUBJECT AREAS--CHEMISTRY

TOPIC TAGS--CRYSTALLINE POLYMER, SPHERULITE, POLYMER STRUCTURE,
  POLYETHYLENE, ANNEALING, POLYCHLOROPRENE

CONTROL MARKING--NO RESTRICTIONS

DOCUMENT CLASS--UNCLASSIFIED
PROXY REEL/FRAME--3007/0987   STEP NO--US/0000/70/008/000/1015/1026

CIRC ACCESSION NO--AP0136417
                              UNCLASSIFIED

CIRC ACCESSION NO--AP0136417

ABSTRACT/EXTRACT--(U) GP-0- ABSTRACT. AN INVESTIGATION OF SMALL ANGLE
SCATTERING PRODUCED BY POLARIZED LIGHT FROM STRETCHED AND ANNEALED
POLYMER SYSTEMS CONTG. SPHERULITES YIELDS INFORMATION ON THE SUPERMOL.
TRANSITIONS THAT OCCUR DURING SUCH TREATMENT. A SERIES OF SEMICRYST.
POLYMER SYSTEMS (FILMS, FIBERS) SHOW THAT STRETCHING LEADS TO
DEFORMATION OF SPHERULITES AND SUBSEQUENT TRANSFORMATION TO AN
ORIENTATIONAL SUPERMOL. ORDER. THE SIZE OF THE SINGLE ELEMENT C SUB2 OF
THE SUPERMOL. ORDER IN THE DIRECTION OF STRETCHING, DETD. FROM THE
DISTANCE BETWEEN THE LAYER LINES OF THE SCATTERING PATTERN, IS RELATED
TO THE DIAMETER D SUB0 OF THE INITIAL SPHERULITES BY THE RELATION C SUB2
EQUALS KD SUB0 LAMBDA SUBS, WHERE LAMBDA SUBS IS THE DRAW RATIO OF THE
MACROSYSTEM AND K IS A PARAMETER DETG. THE DEFORMABILITY OF THE
SPHERULITES. FOR POLYETHYLENE AT ROOM TEMP., K IS UNITY AND FOR
POLYCHLOROPRENE IT IS 1.2. CHANGES OF C SUB2 AFTER ANNEALING AND
RESTRETCHING OF THE SYSTEMS ALSO OBEY THIS RATIO.   FACILITY:
INST. MACROMOL. COMPD., LENINGRAD, USSR.

UNCLASSIFIED

1/2   032   UNCLASSIFIED   PROCESSING DATE--27NOV70
TITLE--COMPARATIVE STUDY OF THE SUPRAMOLECULAR TRANSITIONS OF POLYETHYLENE
    AND POLYCHLOROPRENE FILMS DURING UNIAXIAL STRAIN -U-
AUTHOR-(04)-BARANOV, V.G., BEZIRGANYAN, P.A., GASPARYAN, K.A., RAPYAN,
    YU.A.
COUNTRY OF INFO--USSR

SOURCE--IZV. AKAD. NAUK ARM. SSR, FIZ. 1970, 5(1), 47-59

DATE PUBLISHED-------70

SUBJECT AREAS--MATERIALS, CHEMISTRY

TOPIC TAGS--POLYETHYLENE, POLYCHLOROPRENE, PLASTIC FILM, ELONGATION,
    BREAKING STRENGTH, X RAY DIFFRACTION, MATERIAL DEFORMATION

CONTROL MARKING--NO RESTRICTIONS

DOCUMENT CLASS--UNCLASSIFIED
PROXY REEL/FRAME--3007/0968   STEP NO--UR/0431/70/005/001/0047/0059

CIRC ACCESSION NO--AP0136398
                    UNCLASSIFIED

CIRC ACCESSION NO--AP0136398
ABSTRACT/EXTRACT--(U) GP-0- ABSTRACT. HIGH PRESSURE POLYETHYLENE (I) AND
POLYCHLOROPRENE (II) FILMS WERE ELONGATED UP TO THE BREAKING POINT AND
THEIR STRUCTURAL CHANGES WERE STUDIED BY OPTICAL AND X RAY DIFFRACTION.
IN I, REGIONS OF THE REVERSIBLE DEFORMATION (40-50PERCENT ELONGATION),
IRREVERSIBLE RECRYSTN. (SMALLER THAN OR EQUAL TO 140PERCENT
DEFORMATION), AND THE TRANSITION OF THE SPHERULITES TO FIBRILS (SMALLER
THAN OR EQUAL TO 500PERCENT DEFORMATION) WERE OBSD. IN II, THERE ARE 2
TYPES OF DIFFRACTION PATTERNS: 1 CORRESPONDING TO DEFORMATION SMALLER
THAN OR EQUAL TO 300PERCENT AND THE OTHER TO 350-800PERCENT DEFORMATION.
    FACILITY: EREVAN. GOS. UNIV., EREVAN, USSR.

UNCLASSIFIED

USSR

UDC: 681.326.3

ADZHEMYAN, V. L., GASPARYAN, L. Kh., KHACHATRYAN, G. S., SEMERDZHYAN, M. A.

"A Microprogram Control Device"

Moscow, Otkrytiya, Izobreteniya, Promyshlennyye Obraztsy, Tovarnyye Znaki,
No 9, Mar 72, Author's Certificate No 331387, Division G, filed 2 Sep 70,
published 7 Mar 72, p 152

Translation: This Author's Certificate introduces a microprogram control
device which contains a memory unit, registers, decoders, a cadence signal
generator, and logic elements. As a distinguishing feature of the patent,
the speed and structural flexibility of the device are increased by includ-
ing an additional digital place in each field of the information register
of the memory unit. The output of each of these digital places is connected
respectively to the input of the first AND circuit, through a NOT gate to
the input of the second AND circuit, and through the decoder for the given
field to the input of the third AND circuit. The second input of the third
AND circuit is connected to the output of a circuit for isolating even and
odd signals. The inputs of the first and second AND circuits are connected
through delay circuits for the given digital place to the reset and set
terminals of this additional digital place respectively.

1/1

- 4 -

USSR

NISEVICH, N. I., KAZARIN, V. S., GASPARYAN, M. O., and IVANOVA, G. M.

"Comparative Analysis of Some Serologic Reactions in the Diagnosis of Infectious Mononucleosis in Children"

Vopr. Okhrany Materinstva i Detstva (Problems of the Protection of Motherhood and Childhood), 1973, No 7, pp 35-39 (from RZh - Biologicheskaya Khimiya, No 22, Nov 73, Abstract No 1706)

Translation: A comparative analysis has been carried out of the diagnostic value and specificity of 6 serologic tests: reactions of Paul-Bunnel, Paul-Bunnel-Davidson, Tomchik, Lovrik, hemolysis of beef erythrocytes, and agglutination of horse erythrocytes. All of these reactions were tested concurrently on the same patient in the dynamics of the disease. In all 108 patients with infectious mononucleosis and 100 patients with other problems (control group) were studied. It has been established that the best diagnostic value for infectious mononucleosis is obtained from the reactions of Paul-Bunnel-Davidson (92.5%) and from the Tomchik reaction (90.7%). The reaction of the agglutination of horse erythrocytes is recommended as an express diagnostic method.

1/1

1/2   014
UNCLASSIFIED   PROCESSING DATE--13NOV70
TITLE--OPTICAL ACTIVITY OF KYURSANGE PETROLEUMS -U-

AUTHOR-(04)-SHAKHVERDIYEV, YA.KH., SATTARZADE, I.S., GASPARYAN, N.G.,
   SATTARZADE, A.D.
COUNTRY OF INFO--USSR

SOURCE--AZERB. NEFT. KHOZ. 1970, (1), 39-41

DATE PUBLISHED-------70

SUBJECT AREAS--MATERIALS, EARTH SCIENCES AND OCEANOGRAPHY

TOPIC TAGS--OPTIC PROPERTY, PETROLEUM DEPOSIT, GEOGRAPHIC LOCATION,
   AROMATIC HYDROCARBON

CONTROL MARKING--NO RESTRICTIONS

DOCUMENT CLASS--UNCLASSIFIED
PROXY REEL/FRAME--3002/1128
                          STEP NO--UR/0487/70/000/001/0039/0041

CIRC ACCESSION NO--AP0128555
                    UNCLASSIFIED

CIRC ACCESSION NO--AP0128555
ABSTRACT/EXTRACT--(U) GP-0- ABSTRACT. SP. OPTICAL ROTATION (ALPHA) D OF
  PETROLEUM FROM A MULTISTRATAL KYURSANGE SAND GRAVEL FORMATION DECREASED
  FROM PLUS 0.63 TO PLUS 0.53 FROM THE UPPER TO THE LOWER STRATA. WITH
  INCREASING B.P. OF FRACTIONS B. 60-95, 95-122, 122-50, 150-75, 175-200,
  200-25, 225-250, 250-300, 300-50, 350-400, 400-450, AND 450-500DEGREES,
  (ALPHA) D CHANGED FROM 0.0 TO MINUS 0.04, MINUS 0.05, MINUS 0.03, MINUS
  0.03, MINUS 0.09, MINUS 0.03, 0.00, PLUS 0.12, PLUS 0.57, PLUS 0.90, AND
  PLUS 2.63 FOR THE UPPER STRATA AND FROM 0.0 TO 0.0, PLUS 0.07, 0.00,
  MINUS 0.03, 0.06, PLUS 0.00, 0.00, PLUS 0.40, AND PLUS 0.55, PLUS 1.26,
  AND PLUS 3.09. AFTER SULFONATION, (ALPHA) D VALUES WERE LOWER,
  REFLECTING OPTICAL ACTIVITY IN THE AROMATIC HYDROCARBONS. THE VARIATION
  IN THE PARAFFINIC HYDROCARBON INDEXES J SUBAV (30.1 AND 35.9 FOR THE
  UPPER AND 29.4 AND 35.8 FOR THELOWER STRATA) FOR THE 60-500 AND
  300-500DEGREES FRACTIONS AND IN THE AV. NO. OF NAPHTHENIC RINGS-MOL.
  (1.15, 1.74, 1.79, AND 3.60 FOR THE UPPER AND 1.24, 1.39, 1.65, AND 3.13
  FOR THE LOWER STRAT) FOR THE 300-50, 350-400, 400-50, AND 450-500DEGREES
  FRACTIONS CORRELATED WELL WITH THE CHANGE IN (ALPHA) D.

USSR   UDC 621.886.6:539.319

GASPARYAN, S. A., STAKYAN, M. G., MAK, S. L., Yerevan Polytechnical Institute
imeni K. Marks

"Evaluating the Effect of Stress Concentration Under Nonstationary Load Regimes"

Abstract: The effect of stress concentration in terms of the longevity require-
ment is evaluated for groups of machine parts operating under conditions of
cyclic overloads and upon which are imposed requirements for providing a cer-
tain "time resource" since the probability of nonbreakdown is very sensitive to
changes in overstresses. The cyclic strength of smooth and notched parts
(key connections) is discussed. The sums of the relative longevities a are
considered as statistical values; a relationship is proposed for determining
the probability value a. The effect of the concentration of stresses is
evaluated by the coefficient a, which is the ratio of the probabilities of
nonbreakdown $l(N)$ for smooth and notched parts. A probability estimate of the
coefficient $l(N)$ is given as a function of the level of the overstresses, the
form of the stress state, and given load regimes.

1/1

1/2   008   UNCLASSIFIED   PROCESSING DATE--11SEP70
TITLE--ON THE CALCULATION OF THE ENDURANCE UNDER NONSTATIONARY CONDITIONS·
OF LOADING -U-
AUTHOR--GASPARYAN, S.A., MAK, S.L.

COUNTRY OF INFO--USSR

SOURCE--YEREVAN, IZVESTIYA AKADEMII NAUK ARMYANSKOY SSR, SERIYA
TEKHNICHESKIKH NAUK, VOL 23, NO 1, 1970, PP 11-17
DATE PUBLISHED--------70

SUBJECT AREAS--MATERIALS, MECH., IND., CIVIL AND MARINE ENGR

TOPIC TAGS--BIBLIOGRAPHY, FATIGUE LIFE, CYCLIC ENDURANCE TEST

CONTROL MARKING--NO RESTRICTIONS

DOCUMENT CLASS--UNCLASSIFIED
PROXY REEL/FRAME--1987/1409   STEP NO--UR/0173/70/023/001/0011/0017

CIRC ACCESSION NO--AP0104723
                            UNCLASSIFIED

CIRC ACCESSION NO--AP0104723

ABSTRACT/EXTRACT--(U) GP-0- ABSTRACT. A STUDY WAS MADE OF THE
POSSIBILITY OF THE CALCULATION OF SECONDARY FATIGUE LIMITS TAKING INTO
ACCOUNT THE PROBABILITY OF NONDESTRUCTION OVER THE PARAMETERS OF THE
INITIAL FATIGUE CURVE AND INTEGRAL PARAMETER OF THE EVALUATION OF
LOADING CONDITIONS Q PROPOSED EARLIER. A QUANTITATIVE EVALUATION IS
GIVEN OF THE DEPENDENCE OF THE FATIGUE LIMIT UNDER STATIONARY LOADING
CONDITIONS ON THE PARAMETER Q.

UNCLASSIFIED

1/2   C14   UNCLASSIFIED   PROCESSING DATE--20NOV70
TITLE--CHEMISTRY OF ETHERS WITH UNSATURATED RADICALS. XVI. REACTION OF A
   GRIGNARD REAGENT WITH 2,METHOXY,2,METHYL, 3,ALKYNES -U-
AUTHOR-(04)-MKRYAN, G.M., GASPARYAN, S.M., MELKONYAN, N.K., NAZARYAN, A.A.

COUNTRY OF INFO--USSR

SOURCE--ZH. ORG. KHIM. 1970, 6(5), 912-15

DATE PUBLISHED-------70

SUBJECT AREAS--CHEMISTRY

TOPIC TAGS--ETHER, FREE RADICAL, GRIGNARD REAGENT, METHOXY COMPOUND,
   ALKYNE, GAS CHROMATOGRAPH, DIMERIZATION

CONTROL MARKING--NO RESTRICTIONS

DOCUMENT CLASS--UNCLASSIFIED
PROXY REEL/FRAME--3006/1335   STEP NO--UR/0366/70/006/005/0912/0915

CIRC ACCESSION NO--AP0135009
-------------------------------UNCLASSIFIED-------------------------------

CIRC ACCESSION NO--AP0135009
ABSTRACT/EXTRACT--(U) GP-0- ABSTRACT. THE REACTIONS OF RC TRIPLE BOND
CCME SUB2 CME (R IS ME, ET, PR, BU) WITH R PRIME1 HGBR (R PRIME1 IS ME
OR ET) PROCEED BY A FREE RADICAL MECHANISM (G. M. MKRYAN, ET AL., 1966,
1967, 1968). THE RADICALS RC TRIPLE BOND CC.ME SUB2 (I) AND R PRIME1.
INTERACT GIVING R PRIME1 R PRIME1, RC TRIPLE BOND CCME SUB2 R PRIME1,
AND RC TRIPLE BOND CCME SUB2 CME SUB2 C TRIPLE BOND CR. I REARRANGES TO
RC.:C: CME SUB2 WHICH THEN DIMERIZES GIVING MC SUB2 C:C:CRCR:C:CME SUB2
(II) AND RC TRIPLE BOND CCME SUB2 CR:C:CME SUB2 OR I REACTS WITH R
PRIME1. GIVING RR PRIME1 C:C:CME SUB2 (III). II AND III WERE DETECTED
BY GAS CHROMATOG. ONLY.   FACILITY: VSES. NAUCH.-ISSLED. PROEKT.
INST. POLIM. PROD., USSR.

UNCLASSIFIED

USSR

KAZARYAN, R. A., MANUCHARYAN, R. G., GASPARYAN, S. S.

"Calculating and Measuring the Probability of Errors in a Binary Optical Communications Channel With Polarization Modulation of Laser Emission"

Translation: The total error probability P_{er} is calculated for an optical communications channel in the case of light polarization modulation. A general expression is found for P_{er} from which an expression for P_{er} with modulation of light intensity is derived as a special case. Measurements are made of P_{er} in cases of modulation of polarization or intensity. It is shown that the threshold value which ensures a minimum overall error in polarization modulation is constant and equal to zero regardless of the intensity of the laser and background radiation, whereas with intensity modulation the optimum threshold is tracking (sic) in the general case. It is also shown that the laser emission intensity which ensures identical probability of the overall error in the case of polarization modulation is $\sqrt{2}$ times less than for intensity modulation. Bibliography of 8 titles.

1/1

- 28 -

GASPARYAN, Yu. M.

CSLF≥N

106. USSR   UDC 577.22+611--0.18.82 : 519.24

GASPARYAN, Yu. M., GAMBARYAN, L. S., and DZHUL'PAYAN, M. Kh.   SO: FOREIGN PRESS DIGEST
                                                                    29 OCT 91

"One Statistical Model of an Elementary Biological System"

Kiberneticheskiye Aspekty v Izuchenii Raboty Mozga (Cybernetic Aspects of the Study of the Brain's Functioning), Moscow, Nauka Publishing House, 1970, pp 215-222

Abstract: A statistical model of an elementary biological system is examined: it takes into account somewhat approximately the well-known knowledge of electrophysiology of recent years and also some hypotheses suggested by the authors.

     Modeling on a digital computer is the method of study employed.

     The operation algorithm of the system is broken down into four stages: 1) "peripheral" coding, 2) transmission of information along communication channels from receptors to synaptic knobs, 3) synaptic transmission, and 4) integration of information received in the cell. Analytical descriptions of all four stages of the system's operation have been obtained.

1/1

USSR

UDC 577.4

OGANESYAN, E. V., GASPARYAN, YU. S.

"Some Information Problems of the Group Behavior of Automata"

Sb. tr. Zangezursk. lab. adaptivn. sistem AN ArmSSR (Collected Works of the Zangezursk Laboratory of Adaptive Systems of the Armenian SSR Academy of Sciences), 1972, vyp. 1., pp 89-93 (from RZh-Kibernetika, No 12, Dec 72, Abstract No 12V259)

No abstract

1/1

GASPAR'YANTS, E.M.

"Effect Of Ionospheric Disturbances On Stability Of Operation Of Short-Wave
Radio Links"

Abstract: The results are considered of an analysis of the effect of ionospheric
disturbances on the stability of operation of polar and middle latitude short-wave
links each 10,000 km long. It is shown that the percentage of nontransmission
on polar radio links is 2-3 times higher than that on middle-latitude links. For
the most part disturbances connected with absorption are observed on polar radio
links and on middle-latitude links disturbances connected with changes of the
critical frequencies of the F_2 layer. The author thanks N.N.Shumskiy for useful
advice and G.G. Smirnov, Ye. V. Mashinskiy, and S.K. Mamedov for participation
in the processing of material. Received by editors 19 Nov 70. 5 ref. 1 ill. 4 tab.

Acc. Nr: *AP0051951*   Ref. Code: *UR0297*

PRIMARY SOURCE: Antibiotiki, 1970, Vol 15, Nr *4* , pp *357-359*

EXPERIENCE WITH LOCAL USE OF GLYCOCYCLINE IN CERTAIN LOR DISEASES

N. V. Gaspodinova, A. I. Kuzmina, V. S. Moshkevich, N. N. Popova, S. I. Eydelshteyn

F. E. Dzerzhinsky's Polyclinic, Moscow

Acquous solutions of glycocycline at a concentration of 500 to 20.000 Units/ml and powders were used locally as ear drops, solutions for washing the sinus cavities and aerosol inhalations in the treatment of 144 lor cases with microflora sensitive to tetracycline. 110 patients suffering from exacerbated chronic pharyngo-laryngitis, sinusitis, chronic otitis and tonsilitis showed satisfactory results. The antibiotic applications were satisfactory tolerated by the patients. No severe side effects were observed.

REEL/FRAME
19820438

USSR

TOKAREV, A. F., and GASRYUSHOV, A. N.

"Wear On a Roller Perforation Instrument"

Translation: The process of wear of roller perforation instruments used
for the perforation of laminar bands for the preparation of alkali batteries
is described. It was established that the major effect on the degree of
perforation of the bands was the wear of the teeth of the barbed roller.

1/1

USSR   UDC $\triangle$621.3.032.269.1

BOGDANOVICH, B. Yu., VORONKOV, R. M., GASS, V. F., and DANILICHEV, V. A.

"Autoelectronic Beam for Linear Electron Accelerators"

Moscow, Pribory i Tekhnika Eksperimenta, No. 1, January-February, 1971, pp 44-46

Abstract: The authors present the results of their measurements of electron beam parameters from a gun designed to inject electron bunches throughout a phase of 30-40° and with an energy of 300-400 kev in the accelerating section, with a constant phase velocity equal to that of light and a field intensity of 100 kV/cm. They also describe the equipment they used to make these measurements. A cross-sectional drawing of the electron gun in this device is given and its dimensions specified. A "Nord-10" and a "Nord-100," both of them electric discharge pumps, were used to obtain the required degree of evacuation, which was from $2 \cdot 10^{-6}$ to $5 \cdot 10^{-6}$ mm Hg for the first experimental run. A block diagram of the entire equipment is given as well as curves for the equipment character- istics and for the results obtained. All measurements, lasting for 20 hours, were made with the same cathode, which underwent no change in dimensions. 1/1

1/2   020   UNCLASSIFIED   PROCESSING DATE--02OCT70
TITLE--INCREASE IN THE INHIBITOR ACTION OF KATAPIN ON THE CORROSION OF
IRON IN SULFATE SOLUTIONS -U-
AUTHOR-(02)-GASSAN, S.F., IOFA, Z.A.   *GASSAN, S. F.*

COUNTRY OF INFO--USSR

SOURCE--ZASHCH. METAL. 1970, 6(2), 231-3

DATE PUBLISHED--------70

SUBJECT AREAS--MATERIALS, MECH., IND., CIVIL AND MARINE ENGR

TOPIC TAGS--IRON CORROSION, CORROSION INHIBITOR, SULFATE

CONTROL MARKING--NO RESTRICTIONS

DOCUMENT CLASS--UNCLASSIFIED
PROXY REEL/FRAME--1992/0750   STEP NO--UR/0365/70/006/002/0231/0233

CIRC ACCESSION NO--AP0111943
                          UNCLASSIFIED

CIRC ACCESSION NO--AP0111943
ABSTRACT/EXTRACT--(U) GP-0- ABSTRACT. A REVIEW AND EXTENSION OF PAPERS
BY I. CONCERNING THE USE OF KATAPIN AND THE USE OF NA SUB2 S, KI, OR
SULFOSALYCILIC ACID) (SSA) IN THE INCREASE OF THE INHIBITION INDEX.
THE ADSORBED FILM CAPACITY APPLIED VOLTAGE AMPLITUDE (800 HZ) IN N H
SUB2 SO SUB4 SHOWED PROGRESSIVE DISPLACEMENT BY THE COUNTER ADSORPTION
OF ISO PR DERIV. OF KATAPIN AND THE TENDENCY TO CONTINUOUS KATAPIN FILMS
ABOVE CONCNS. OF 0.25 G-L.; FURTHER INFLUENCE BY 10 PRIME NEGATIVE3 N NA
SUB2 S AT THE 0.25 G-L. LEVEL GAVE THE INHIBITION INDEX (GAMMA) OF 290
VS. THOSE FOR 10 PRIME NEGATIVE2 M SSA OF 130, OR 2 TIMES 10 PRIME
NEGATIVE4 N KI OF 210, OR THE INITIAL VALUE OF 110. THE SUBSTITUTION OF
ISO PR KATAPIN FOR THE ME DERIV. GAVE LOWER, AND THE ET HIGHER GAMMA
VALUES. COMPLETE INHIBITION WAS NOT OBTAINED OWING TO THE ALWAYS
INCOMPLETE FILMING.

UDC: 621.317.783(088.8)

USSR

GASSANOV, L. G., KARUSHKIN, N. F., KREMENCHUGSKIY, L. S., YASHCHISHIN, P. I.

"An SHF Power Meter"

USSR Author's Certificate No 263697, filed 25 Jun 68, published 24 Jun 70 (from RZh-Radiotekhnika, No 12, Dec 70, Abstract No 12A323 P)

Translation: This Author's Certificate introduces an SHF power meter which contains a pyroelectric radiation receiver made in the form of a matched absorbing load, and also a calibrated power source. As a distinguishing feature of the patent, precision is improved and provision is made for absolute measurements of SHF power by using a receiver of emission in the optical range as one side of the pyroelectric pickup, and a receiver of SHF emission as the other side. E. L.

1/1

- 95 -

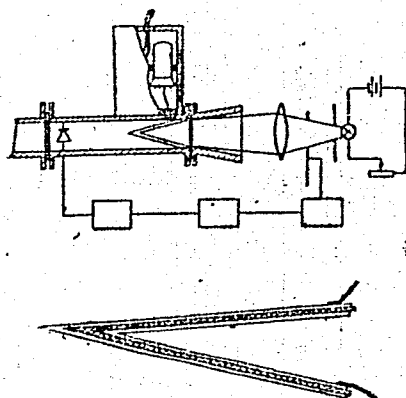Instruments and Measurements

UDC 621.317.794

USSR

GASSANOV, L. G., KARUSHKIN, N. F., KREMENCHUGSKIY, L. S., YASHCHISHIN, P. I.

"An SHF Power Meter"

Moscow, Otkrytiya, Izobreteniya, Promyshlennyye Obraztsy, Tovarnyye Znaki, No 8, 10 Feb 70, p 43, Patent No 263697, Filed 25 Jun 68

Translation: This Author's Certificate introduces an SHF power meter which contains a pyroelectric radiation detector made in the form of an absorbing matched load, and a calibrated power source. The device is designed for improved accuracy and absolute measurements of SHF power over a broad dynamic range. It differs because one side of the pyroelectric detector is for reception in the optical range while the other is for reception of SHF radiation.

1/2

GASSANOV, L. G., et al., Otkrytiya, Izobreteniya, Promyshlennyye Obraztsy, Tovarnyye Znaki, No 8, 10 Feb 70, p 43, Patent No 263697, Filed 25 Jun 68

2/2

USSR

ANTONOV, L. M., and GASTEVA, S. V., Institute of Physiology imeni I. P. Pavlov, Academy of Sciences USSR, Leningrad

"Intensity of Metabolism of Phospholipids of the Brain and Liver of Rats in Histotoxic Hypoxia"

Abstract: It has been established that hypoxia produced by lowering of the partial O_2 pressure in the surrounding atmosphere depresses the phospholipid metabolism of rat brain tissue. A study was made of the effects on phospholipid metabolism of histotoxic hypoxia produced by giving rats 7 mg/kg KCN. This dose, resulting in death of 20% of animals, was equivalent in lethal effect to a 2 hr sojourn of rats in a chamber with a pressure of 180-200 mm. Phospholipid metabolism was studied by determining the radioactivity of tissues upon administration of Na orthophosphate labeled with P^{32}. In rats exhibiting no significant shifts in body temperature under the effect of KCN, the phospholipid metabolism in brain tissue was lowered by 35%. Lowering of the body temperature under the effect of KCN (which amounted to 4.8°C on the average) resulted in a reduction of phospholipid metabolism of the brain by 53.8%. Keeping the poisoned rats in a refrigerator (so that their
1/2

USSR

ANTONOV, L. M., and GASTEVA, S. V., Doklady Akademii Nauk SSSR, Vol 200,
No 5, 1971, pp 1,229-1,231

body temperature was reduced by 12.3°C) depressed the phospholipid metabo-
lism of the brain by 69.9%. Depression of the phospholipid metabolism in
liver tissue of poisoned rats amounted to 24.5 and 38% upon reduction of
body temperature by 4.8° and 12.3°C, respectively, whereas the effect of
KCN alone, without reduction of body temperature, did not lower the
phospholipid metabolism in this tissue.

2/2

1/2   032   UNCLASSIFIED   PROCESSING DATE--11SEP70
TITLE--NONPLANAR VIBRATIONS OF THE ENOL FORM OF ACETYLACETONE -U-

AUTHOR--GASTILOVICH, YE.A., KOPTEVA, T.S., VIKTOROVA, N.M.

COUNTRY OF INFO--USSR

SOURCE--OPT. SPEKTROSK. 1970. 28(2), 241-7

DATE PUBLISHED--------70

SUBJECT AREAS--CHEMISTRY, PHYSICS

TOPIC TAGS--KETONE, IR SPECTRUM, DIPOLE MOMENT, QUANTUM CHEMISTRY,
   VIBRATION FREQUENCY

CONTROL MARKING--NO RESTRICTIONS

DOCUMENT CLASS--UNCLASSIFIED
PROXY REEL/FRAME--1984/1909   STEP NO--UR/0051/70/028/002/0241/0247

CIRC ACCESSION NO--AP0100477
                             UNCLASSIFIED

UNCLASSIFIED   PROCESSING DATE--11SEP70

CIRC ACCESSION NO--AP0100477
ABSTRACT/EXTRACT--(U) GP-0- ABSTRACT. THE PROPORTION OF THE KETO AND
ENOL FORMS OF ACETYLACETONE (I) AND ITS DEUTERO DERIV. (II) WAS ESTD.
FROM THE IR BAND SEPN. THE FREQUENCIES AND THE SHIFTS FROM THE ATOM
EQUIL. POSTIONS IN OUT OF PLANE VIBRATIONS WERE CALCD. BY ASSUMING C
SUB2V SYMMETRY. THE DYNAMIC CONSTS. AND THE SINGLE BOND DIPOLE MOMENTS
ARE TABULATED. THE DISTRIBUTION OF DIPOLE MOMENTUM VALUES AGREES WITH
THE QUANTUM MECH. CALCNS. A DISCUSSION OF THESE FACTS IS PRESENTED.

UNCLASSIFIED

USSR   UDC 621.762.002.5

GASUL', M. Yu., STRAUTMANIS, A. A., BAUMANIS, A. A.

"Batcher"

USSR Author's Certificate No 270206, Filed 28 Oct 68, Published 18 Aug 70
(from RZh-Metallurgiya, No 4, Apr 71, Abstract 4G472P)

Translation: A batcher used in the extrusion process containing a hopper
and a powder feed mechanism is introduced. To decrease powder losses and
increase batching accuracy, the batcher is equipped with a labyrinth attach-
ment whose walls and knives are spring-loaded.

1/1

USSR   UDC 681.325.3(088.8)(47)

MYASNOV, V. I., PLESHAKOV, A. A., and GASUMYAN, K. A.

"A Converter Which Converts an Interval of Time Into Digital Code"

Translation: A converter which contains generators of standard-frequency
pulses, a pulse counter, and gates is suggested. In order to reduce errors
in quantization that is performed n times and to reduce the possibility of
using the counting elements with the least limiting frequency of switching,
the lower positions of the pulse counter contain n counting cells, and to
the inputs of these cells the corresponding codes of the n-step standard-
frequency pulse generator are connected via the gates. The one and zero
outputs of the counting cells of the lower positions are connected to the
corresponding inputs of the AND logic circuits, the outputs of which are
connected via an OR circuit with the counting input of the higher positions
of the counter. 1 illustration.

1/1

- 43 -

USSR   UDC: 681.325

MYASNOV, V. I., PLESHAKOV, A. A., GASUMYAN, K. A.

"A Converter Which Changes a Time Interval to Digital Code"

Translation: This Author's Certificate introduces a converter for changing
a time interval to digital code. The unit contains a standard frequency
pulse oscillator, a pulse counter and diodes. As a distinguishing feature
of the patent, the unit is designed for reducing the error of quantization
by a factor of n, and provision is made for using counting elements with a
lower maximum switching frequency. The least significant digits of the
pulse counter contain counting cells with the outputs of the n-cycle standard
frequency pulse oscillator connected to their corresponding inputs through
diodes. The one-output and zero-output terminals of the counting cells of
the least significant digits are connected to the inputs of AND logic cir-
cuits whose outputs are connected through an OR circuit to the counting
input of the most significant digits in the counter.

1/1

USSR   UDC 548.74

AGAYEV, K. A., GASYMOV, V. A., CHIRAGOV, M. I., Institute of Inorganic and
Physical Chemistry, Academy of Sciences Azerbaydzhan SSR

"Electronographic Determination of Structure of $InTlS_2$ Thin Films"

Abstract: The method of electron diffraction is used to study the structure
of thin $InTlS_2$ films. It is determined that they have a hexagonal lattice
with unit cell periods: a = 3.81 ± 0.01, c = 14.91 ± 0.02 A. It is estab-
lished that the Tl occupies positions 1(a) and 1(d), the In -- 2(i), the
S -- 2(h) and 2(g) in rt. gr. P6m2 with coordinates z_{in} = 0.250, z_{S_1} = 0.167,
z_{S_2} = 0.333; the unreliability factor R_{hkl} = 0.114. The structure of $InTlS_2$
is similar to the structure of molybdenite MoS_2 with the difference that in
the case of $InTlS_2$, the octahedrons between the trigonal prisms are filled
with trivalent indium.

1/1

USSR

GASYMOV, T. M., KATANOV, A. A., Institute of Physics, AzerbSSR Academy of
Sciences, Baku

"Influence of Phonon Heating on Propagation of a High-Frequency Electro-
magnetic Wave"

Abstract: The paper examines propagation of a strong, high-frequency elec-
tromagnetic wave in nondegenerate semiconductors under conditions of heating
of electrons and of long-wave phonons interacting with them. In this con-
nection consideration is given to the case in which there is no "heat reser-
voir" of phonons in the lattice and therefore the long-wave phonons trans-
fer the energy derived from the electrons to the medium surrounding the
specimen through the crystal boundaries. The case of the normal skin effect
is studied. It is shown that heating of phonons leads to an appreciably
nonlinear problem. In the region of weak attenuation the laws of attenu-
ation of the field and temperatures of the electrons and phonons are found,
and it is shown that the depth of penetration is strongly dependent on the
amplitude of the incident electromagnetic wave. In the region of strong

1/2

USSR

GASYMOV, T. M., KATANOV, A. A., Fizika Tverdogo Tela, Vol 15, No 9, Sep 73, pp 2644-2646

attenuation of the wave (close to the cyclotron resonance) the authors compute the surface impedance of the semiconductor, which rises with an increase in the amplitude of the incident electromagnetic wave. The depth of penetration of the wave into the semiconductor is found.

2/2

USSR

GASYMOV, T. M., and KATANOV, A. A. (Institute of Physics, Azerbaydzhan Academy of Sciences)

"A Nonlinear Theory of Electromagnetic Wave Propagation in Semiconductors"

Abstract: This paper deals with the propagation of strong, high-frequency electromagnetic waves in nondegenerate semiconductors under conditions of heating of the electrons and long-wave phonons interacting with them. In this respect the authors considered the case in which the lattice lacks a "thermal reservoir" of short-wave phonons. Phonon heating was shown to lead to an essentially nonlinear problem. The laws of field damping and temperature damping of T_e electrons and T_f phonons were established. In the region of intense damping (near a cyclotron resonance) the impedance of a semiconductor was calculated, the latter increasing with increasing amplitude of the incident electromagnetic wave.

The article includes 33 equations. There are four references.

1/1

1/2   008   UNCLASSIFIED   PROCESSING DATE--30OCT70
TITLE--USE OF OLEFINS FOR PREPARING ALKYL SULFONATES -U-

AUTHOR-(05)-TYUTYUNNIKOV, B.N., KARETNIKOVA, V.S., BUKHSHTAB, Z.I.,
   YUSHCHENKO, YE.P., GASYUK, L.V.
COUNTRY OF INFO--USSR

SOURCE--NEFTEPERERAB. NEFTEKHIM. (MOSCOW) 1970, (2), 34-6

DATE PUBLISHED-------70

SUBJECT AREAS--CHEMISTRY, MATERIALS

TOPIC TAGS--ALKENE, BIODEGRADABLE DETERGENT, AMMONIUM COMPOUND,
   SULFONATION, SULFITE

CONTROL MARKING--NO RESTRICTIONS

DOCUMENT CLASS--UNCLASSIFIED
PROXY REEL/FRAME--1997/0568   STEP NO--UR/0318/70/000/002/0034/0036

CIRC ACCESSION NO--AP0119486
                        UNCLASSIFIED

USSR   UDC 547.242

GATILOV, Yu. E., IONOV, L. B., and GAVRILOV, V. M., Kazan' Pedagogical
Institute

"Stereochemistry of Tertiary Arsine Oxides"

Abstract: Enantiomers of dialkylaryl- and alkyldiarylarsine oxides are
synthesized and studied. It is shown that the process of formation of
arsine oxides from arsines is accompanied by retention of the relative
configuration; inversion is observed when arsine sulfides are converted
to arsine oxides. Racemization of arsine oxides is studied, and it is
found that the rate of racemization increases with solvents in the follow-
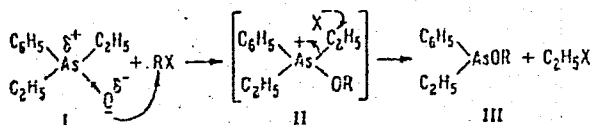ing order: benzene-chloroform-nitromethane.

1/1

USSR

UDC 547.242

GATILOV, Yu. F., and KRALICHKINA, M. G.

"Rearrangement of Tertiary Arsine Oxides. I. Rearrangement of Diethylphenyl-
arsine Oxide Under the Influence of Alkyl Halides"

Abstract: An investigation of the reaction of diethylphenylarsine oxide
with alkyl halides led to isolation of ethylphenylarsinous acid esters.
Data on some of these esters are tabulated. The yield reaches 75%, which
shows that the rearrangement is suitable for industrial synthesis of sym-
metric and asymmetric esters of trivalent arsenic. The following reaction
scheme is suggested:

$$
\begin{array}{ccc}
\underset{C_2H_5}{\overset{C_6H_5}{>}}\overset{\delta^+}{As}\overset{C_2H_5}{\underset{O^{\delta-}}{<}} + RX &\longrightarrow& \left[\underset{C_2H_5}{\overset{C_6H_5}{>}}\overset{X}{\underset{OR}{As}}\overset{C_2H_5}{}\right] &\longrightarrow& \underset{C_2H_5}{\overset{C_6H_5}{>}}AsOR + C_2H_5X \\
I & & II & & III
\end{array}
$$

1/2

- 24 -

USSR

The conversion of diethylphenylarsine oxide (I) to quasiarsonium salt (II) is accompanied by rearrangement of the electron cloud at the arsenic atom. The resultant positive charge on the arsenic atom is propagated by the induction effect to the α-carbon atom of the ethyl radical, which leads to considerable weakening of the As-C bond, and breaking of this bond leads to formation of the corresponding ester (III).

2/2

Acc. Nr: AP0043735   Abstracting Service: 5/70 Ref. Code:
                        INTERNAT. AEROSPACE ABST.   UR 0141

GATELYUK E.D.

A70-23132 #   Certain problems of constructing radio interferometers with autonomous reception (Nekotorye voprosy postroeniia radiointerferometrov s avtonomnym priemom). V. A. Alekseev, E. D. Gateliuk, V. D. Krotikov, V. N. Nikonov, V. S. Troitskii, and A. I. Chikin (Gor'kovskii Gosudarstvennyi Universitet, Gorki, USSR). *Radiofizika*, vol. 13, no. 1, 1970, p. 5-15. 24 refs. In Russian.

Discussion of the design principles of astronomical radio interferometers which feature autonomous reception—i.e., the absence of coupling between the reception points. The data are recorded at each reception point in conjunction with reference signals from frequency standards. The sensitivity of correlation devices which process data in digital form or in computer binary code is analyzed, and attention is given to possible improvements in high-resolution radio interferometers.

T.M.

IZV VUZ

ACS

1/1

18

USSR   UDC 632.95

GATES, P. S., JILLON, J., and SEGGERS, D. T.

"Herbicide"

USSR Author's Certificate No 307553, filed 30 Sept 69, published 3 Aug 71
(From Referativnyy Zhurnal -- Khimiya, No 10 (II), 1972, Abstract No 10N606P
by T. A. Belyayeva)

Translation: Derivatives of 2,3-dihydrobenzofuran (I) of the general formula
2-RR'-3-R^2R^3-4-R^4-5-R^5O-6-R^6-7-R^7-I (R^1, R^2, R^3 = H or alkyl or R^1R^2 or R^2R^3
form an alkylene chain; R = hydroxy, alkoxy-, alkenyloxy-, alkylthio-, aryloxy-,
alkynyloxy group or NR^8R^9, where R^8 and R^9 = alkyl or NR^8R^9 - heterocyclic
radical; or RR' = O or =NR^{10}, where R^{10} = alkyl or cycloalkyl; R^5 = R^{11}CO,
$R^{12}SO_2$ or $R^{12}SO$, where R^{11} = haloalkyl R^{12} = substituted alkyl, R^4R^6, R^7 = H,
alkyl halogens, cyano, acyl or alkoxy group) possess high herbicidal activity
and significant selectivity, especially in regard to sugar beets with treat-
ment just after sprouting.

1/1

USSR

GATILOV, Yu. F., IONOV, L. B., KOROVYAKOV, A. P., and KOKORINA, L. G., Kazan'
Pedagogical Institute and Udmurt State University

"Synthesis and Some Reactions of Tertiary Asymmetric Cyanoarsines"

Abstract: Several novel asymmetric tertiary cyanoarsines have been synthe-
sized. For example, ethyl-p-tolylchloroarsine in acetone solution after a
2 hr refluxing with potassium cyanide in water yields ethyl-p-tolylcyano-
arsine, b.p. 113°/2 mm, d_4^{20} 1.2693, n_D^{20} 1.5652. The products could be
oxidized to respective oxides: heating the nitrile of alkylarylarsineformic
acid with hydrogen peroxide yields the corresponding oxide, without affect-
ing the aromatic substituent. To oxidize the methyl group on the phenyl
substituent, aqueous potassium permanganate must be used.

1/1

USSR   UDC 547.242

GATILOV, Yu. F., YAMBUSHEV, F. D., TENISHEVA, N. Kh., Kazan' Pedagogical
Institute

"The Effect of Substituents in the Aromatic Nucleus on the Optical
Activity of Tertiary Arsines"

Abstract: A series of ethyl-o-, m-, and p-bromophenyl-p-tolyl, ethyl-o-,
m-, and p-bromophenyl-p-carboxyphenylatsines has been synthesized and their
properties were investigated; separation of optically active isomers has
been achieved and their structures were proven by IR- and PMR spectro-
scopical analysis. 'It has been shown that the optical activity of
tertiary dialkylarylarsines is closely related to the position of the
substituent in the neighboring aromatic nucleus. Its value decreases
going from ortho to meta to para derivatives.

1/1

- 21 -

USSR

GATILOV, Yu. F., YAMBUSHEV, F. E., and TENISHEVA, N. Kh., Kazan' Pedagogic Institute, Kazan'

"Synthesis and Properties of Alkylarylaminophenylarsines and Their Derivatives"

Leningrad, Zhurnal Obshchey Khimii, Vol 43, No 11, Nov 73, pp 2405-2407

Abstract: By reacting in a benzene solution ethyl-p-tolylchloroarsine and o-, m-, or p-aminobromobenzene with Na, the corresponding alkylarylaminophenylarsines $Et(p-MeC_6H_4)AsC_6H_4NH_2$ (I) were prepared. The diarsines $Et(p-MeC_6H_4)AsAs(C_6H_4Me-p)Et$ and diaminobiphenyls $H_2NC_6H_4C_6H_4NH_2$ formed as byproducts. Compounds I were dark-red liquids with b. p. 90° (5 mm), 127° (5 mm), and 140° (5 mm) for the o-, m-, and p-amino derivative, respectively. Upon the reaction with H^+X^- ($X^- = Cl^-$, NO_3^-, HSO_4^-), compounds I formed the salts $/Et(p-MeC_6H_4)AsC_6H_4NH_3/^+X^-$

1/1

- 41 -

Abstract: The rearrangement of tripropylarsine oxide under the influence of a series of electrophilic reagents has been studied showing that it leads to the formation of respective esters with low yields. The main product of this rearrangement is tripropylhydroxyarsonium salt.

1/1

- 7 -

USSR

GATILOV, YU. F., and YAMBUSHEV, F. D., Kazan' Pedagogical Institute

"Synthesis of Some Asymmetric Arsines and Their Derivatives"

Abstract: Reaction of a Grignard reagent prepared from magnesium and o-dibromo-
benzene with ethyl-p-tolylchloroarsine gave ethyl-o-bromophenyl-p-tolylarsine
which was oxidized with aqueous potassium permanganate to the carboxy derivative
of arsine oxide and finally reduced with SO_2 in HCl to ethyl-o-bromophenyl-p-car-
boxyohenylarsine. Using quinine, this product was resolved into optically active
antipodes. The optically active isomers reacted with sulfur in benzene to yield
optically active sulfides. The original optical isomers could also be oxidized
with NO_2 at -15° to the oxide enantiomers.

1/1

USSR

UDC 547.242

GATILOV, YU. F., and PEROV, Y. A., Kazan' Pedagogical Institute

"Rearrangement of Tertiary Arsine Oxides. II. Rearrangement of Triethylarsine Oxide Under the Influence of Alkyl Halides"

Abstract: The rearrangement of triethylarsine oxide under the influence of alkyl halides was carried out at 80°C in benzene and at a 1:2 ratio of the reagents. In contrast to the rearrangement of fatty-aromatic arsine oxides and corresponding sulfides, the rearrangement of triethylarsine oxide goes in two directions. First of all it yields corresponding alkyl esters of diethylarsinous acid. In addition, the alkoxyarsonium salt can also split an ethylene group forming a hydroxyarsonium salt.

1/1

USSR

UDC 547.242

GATILOV, YU. F., IONOV, L. B., MOLODTSOV, S. S., and KOVYPZINA, V. P., Kazan' State Pedagogical Institute

"The Question of the Stereochemistry of Arsinous Acids"

Leningrad, Zhurnal Obshchey Khimii, Vol 42 (104), No 9, Sep 72, pp 1959-1961

Abstract: It was shown that the rearrangement of the enantiomers of tertiary arsine oxides due to the action of methyl iodide leads to the isolation of enantiomers of corresponding arsinous acid esters. Investigation of this rearrangement -- a process occuring by the S_N2 mechanism -- by the differential thermal analysis showed that the inversion of relative configuration took place.

1/1

Organometallic Compounds

USSR

UDC: 547.242

GATILOV, Yu. F., KOVYRZINA, V. P., KRALICHKINA, M. G., Kazan' Pedagogical Institute

"On the Question of Thermal Behavior of Quasiarsonium Salts"

Abstract: The authors isolate a series of quasiarsonium salts -- intermediate products of rearrangement of tertiary arsine sulfides -- and show that when they are heated they are readily converted to esters of the corresponding thioarsinous acids. It is found that quasiarsonium salts behave differently when heated, depending on their melting point. An analysis of the results of the thermal study confirms the previously assumed S_N2 mechanism of rearrangement.

1/1

Alkaloids

USSR

UDC 547.242

GATILOV, YU. F., IONOV, L. B., MOLODTSOV, S. S., Kazan' Pedagogical Institute

"Concerning the Synthesis of Some Enantiomers of Tertiary Arsines and Their Oxides"

Leningrad, Zhurnal Obshchey Khimii, Vol 42(104), No 7, Jul 72, pp 1535-1537

Abstract: A complex of racemic ethyl-n.-butyl-p-carboxyphenylarsine with morphine was synthesized. The complex has $[\alpha]_D^{20}$ -96.54°. Fractional crystallization of compound (I) yielded diastereomers which were colorless well-formed acicular crystal salts which melt with dissociation. They dissolve readily in lower alcohols, acetone and nitromethane, and are insoluble in absolute ether. Separation of the complexes with 0.3 N HCl gives the corresponding enantiomers of ethyl n-butyl-p-carboxyphenylarsine. Enantiomers of other arsines were synthesized by separating the corresponding complexes, using quinine as the optically active agent. Enantiomers of the corresponding oxides were produced by oxidizing the synthesized optically active arsines with nitrogen dioxide. This reaction yielded a number of previously unreported enantiomers of dialkyl- and alkyl(aryl) carboxyphenyl-arsine oxides. All the enantiomers of tertiary arsine oxides were white crystals which dissolve readily in water and alcohol, somewhat less readily in nitromethane, chloro-

1/2

USSR

GATILOV, YU. F., et al., Zhurnal Obshchey Khimii, Vol 42(104), No 7, Jul 72, pp 1535-1537

form, carbon tetrachloride and benzene, and are insoluble in ether. The compounds are optically unstable and racemize in the presence of trace quantities of moisture.

2/2

- 1 -

USSR   UDC 547.242

GATILOV, Yu. F., and KOVYRZINA, V. P., Kazan' State Pedagogical Institute

"The Mechanism of Rearrangement of Arsenic Dialkylarylsulfides"

Abstract: Differential-thermal curve of diethylphenylarsinesulfide exhibits
two exo-effects, pointing to the formation of two products in its rearrange-
ment. The following mechanism is proposed: the arsenic atom in tertiary
arsine sulfides carries a partial positive charge due to which the α-carbon
atom of the ethyl radical becomes labile. On heating this effect increases,
leading to eventual formation of ethylphenylthioarsenic acid anion and a
carbonium cation. The second exo-effect is due to the formation of ethyl
thioether of ethylphenylarsenic acid.

1/1

USSR   UDC 547.242

GATILOV, Yu. F., and KOVYRZINA, V. P., Kazan' State Pedagogical Institute

"The Mechanism of Rearrangement of Arsenic Dialkylarylsulfides"

Abstract: Differential-thermal curve of diethylphenylarsinesulfide exhibits
two exo-effects, pointing to the formation of two products in its rearrange-
ment. The following mechanism is proposed: the arsenic atom in tertiary
arsine sulfides carries a partial positive charge due to which the α-carbon
atom of the ethyl radical becomes labile. On heating this effect increases,
leading to eventual formation of ethylphenylthioarsenic acid anion and a
carbonium cation. The second exo-effect is due to the formation of ethyl
thioether of ethylphenylarsenic acid.

1/1

USSR   UDC 547.242

GATILOV, Yu. F., IONOV, L. B., and YAMBUSHEV, F. D., Kazan' State Pedagogical
Institute

"Effect of the Substituents in an Aromatic Nucleus on the Optical Activity of
Alkyldiarylarsines"

Abstract: Novel tertiary arsines were synthesized and separated into optical
isomers by optically active quinine. To a solution of 39 g potassium per-
manganate in 500 ml water, 25 g of ethylphenyl-m-tolylarsine was added and
heated for 20 hrs at 90°. To the solution 2 ml alcohol was added, the solu-
tion was filtered, and the filtrate acidified. The crude oxide was then
reduced with SO_2 for 2 hours to yield racemic ethylphenyl-m-carboxyphenyl-
arsine, m.p. 121°. Pure optical isomers were obtained by treatment with
optically active quinine. It was shown that introduction of substituents
in the aromatic nucleus leads to lower optical activity.

1/1

- 39 -

USSR

UDC:547.242

GATILOV, Yu. F., and IONOV, L. B., Kazan' Pedagogical Institute

"Synthesis and Properties of Secondary Halogenated Arsines and Their Derivatives"

Leningrad, Zhurnal Obshchey Khimii, Vol 40, No 1, Jan 70, pp 140-142

Abstract: A new synthetic method for secondary halogenated arsines (I) was developed. It consists of three steps. Diethylamine was slowly added to ice-cooled phenyldichloroarsine to yield, after three hours on a steam bath, phenyl (diethylamino) chloroarsine. The latter was added to propylmagnesium bromide in ethyl ether to give, after two hours on a steam bath, phenyl-propyl (diethylamino) arsine, which, when hydrolysed with hydrochloric acid, yielded 53.2% phenylpropylchloroarsine. Phenylethyl-, phenylbutyl-, and benzylethylchloroarsines were similarly prepared. All synthesized I are liquids, easily hydrolysed. Adding I under an inert gas to a cool solution of an appropriate Grignard reagent in ethyl ether gave, after several hours at room temperature, tertiary aryl-propylalkyl substituted arsines (yields 65.3-86.5%), previously unknown.

1/1

Acc. Nr: Abstracting Service: Ref. Code:
AP0049128   CHEMICAL ABST. 5-70   4R0079

100846k Synthesis and properties of secondary halo-sub-
stituted arsines and their derivatives. Gatilov, Yu. E.; Ionov,
L. B. (Kazan. Pedagog. Inst., Kazan, USSR). Zh. Obshch.
Khim. 1970, 40(1), 140-2 (Russ). To 54 g PhAsCl$_2$ was added
with ice cooling 17.7 g Et$_2$NH to yield, after 3 hr on a steam bath,
58.1% PhAs(NEt$_2$)Cl, b$_2$ 102°, which (24 g) added to PrMgBr,
from 2.66 g Mg in Et$_2$O, and refluxed 2 hr gave 12.4 g 53.2%
PhPrAsCl, b$_{10}$ 125°, d^{20} 1.3316, n$_D^{20}$ 1.5790, from facile hydrolysis
of PhPrAsNEt$_2$. Similarly were obtained RPhAsCl (R shown):
Et, 67.5%, b$_{10}$ 110°, 1.3593, 1.5875; Bu, 61.3%, b$_{10}$ 139°,
1.2881, 1.5705; MeC$_6$H$_4$, 59.7%, b$_{10}$ 127°, 1.3232, 1.5840.
Addg. 8.3 g PhPrAsCl to BuMgBr from 1.67 g Mg in Et$_2$O gave,
after several hr at room temp., 84.5% PhPrAsR (R = Bu), b$_{10}$
136-7°, 1.0971, 1.5371. Similarly were prepd. the analogs (R
shown): Et, 83.5, b$_{10}$ 108-9°, 1.1414, 1.5493; Pr, 89.6%, b$_{10}$
124-5°, 1.1187, 1.5438; amyl, 82.3%, b$_{10}$ 148-9°, 1.0849,
1.5342. Also reported were MeC$_6$H$_4$AsPrR: Et, 72.4%, b$_{10}$
122-3°, 1.1192, 1.5443; Pr, 84%, b$_{10}$ 138-9°, 1.0977, 1.5375;
Bu, 86.5%, b$_{10}$ 154-5°, 1.0869, 1.5357; Am, 65%, b$_{10}$ 165-6°,
1.0671, 1.5283. All reactions were run under CO$_2$. The tertiary
arsines shown above were thus prepd. without recourse to organo-
lead compds. RR^{1}AsCl shown above were hydrolyzed by H$_2$O
and the atomic refraction of As in them was 11.9, i.e. typical of
As(III) compds.   G. M. Kosolapoff

REEL/FRAME

19800934

USSR

GATKIN, N. G.

"Approximation of the Optimal Processing Functional When Non-Gaussian Noise is Present"

Vestn. Kiev. Politekhn. In-ta Ser. Radiotekhn. i Elektroakust.
[Herald of Kiev Polytechnical Institute. Electronics and Acoustics Series], 1973, No 10, pp 86-88 (Translated from Referativnyy Zhurnal Kibernetika, No 10, 1973, Abstract No 10V201)

Translation: The problem of detection of a signal against a background of non-Gaussian noise is studied. The Δ-criterion is used to determine the optimal processing functional. It is shown that for a certain class of noise, linear processing is a quadratic approximation of optimal processing.   Author's view

1/1

USSR   UDC   621.391.8

GATKIN, N. G., KRASNYY, L. G., and PASECHNYY, S. V.

"Detection of Signals in Reverberation Noise"

Abstract: The reverberation referred to in the title of this ar-
ticle is the sea return, for which a nonstationary random process
of the form $N(t) = m(t)n(t)$ is assumed, where $m(t)$ is a defined
function and $n(t)$ is a stationary random process with the correla-
tion function $K(\tau) = \sigma_p^2 (1 - |\tau|/\tau_u)\cos \omega_0\tau$. These formulas are
obtained from "Statisticheskiye svoystva morskoy reverberatsii"
(Statistical Characteristics of Sea Return) by Ol'shevskiy, V. V.,
published in 1966 by Nauka. The authors of the present article
derive an expression describing the structure of an optimal detec-
tor of this signal and estimate the noise immunity of the detector.
They then determine the loss in noise immunity possible in the use
of a nonoptimal receiver instead of an optimal one with either the
nonwhiteness of the noise or the nonstationary quality of the noise
taken into account. They conclude that, in practical applications,
it is best to use receivers with single resonance circuits.
1/1

USSR   UDC 621.317.757

AGRANOVICH, S. D., GATKIN, N. G., KARNOVSKIY, M. I., KRYZHANOVSKIY, I. A.,
SLUTSKIY, A. M.

"Device for Time Compression of Signals for Spectral Analyzers"

Translation: In the majority of analyzers used to analyze comparatively long
processes (10-20 seconds) there are compression devices executed on the basis
of equipment for contact magnetic recording. These devices can be subdivided
into two groups: 1) devices with rotating reproduction heads, 2) devices with
stationary reproduction heads. The advantages of the devices of the second
group are indicated, and a description is presented with the technical speci-
fications of one of them.

1/1

USSR   UDC: 621.391.883.2

GATKIN, N. G., GERANIN, V. A., KARNOVSKIY, M. I., KRASNYY, L. G.

"Resistance to Interference of a Typical Signal Detection Channel"

<u>Pomekhoustoychivost' tipovogo trakta obnaruzheniya signalov</u> (cf. English above), Kiev, "Tekhnika", 1971, 203 pp, ill. 73 k. (from <u>RZh-Radiotekhnika</u>, No 6, Jun 71, Abstract No 6A37)

<u>Translation:</u> The book is made up of three chapters: the first deals with the basic elements of a typical detection channel (detectors and filters), the second is devoted to the detection of signals against a background of stationary interference, and the third takes up detection of signals against a background of nonstationary interference. The book was compiled from materials of original investigations by the authors. N. S.

1/1

USSR   UDC 531.717.2.082.54:621.835

GAFANOVICH, G. YA., and GATSKALOVA, T. G.

"The Interferometer Method of Verifying Sample Involute Cams"

Khar'kov, Ukr. resp. nauch.-tekhn. konf., posvyashch. 50-letiyu metrol.
sluzhby USSR, 1972 -- sb. (Ukrainian Republic Scientific and Technological
Conference Honoring the 50th Anniversary of the Ukrainian SSR's Metrological
Service, 1972 -- Collection of Works), 1972, pp 196-197 (from Referativnyy
Zhurnal -- Metrologiya i Izmeritel'naya Tekhnika, No 2, 1973, Abstract No
2.32.424)

Translation: KhGNIIM [Khar'kov State Scientific Research Institute of
Metrology] has developed an IPPK [expansion unknown] instrument for verifying
involute surfaces that is based on the interferometer method of measuring the
involute in the polar system of coordinates, which method insures the highest
degree of accuracy. The involute profile is verified on the instrument by
comparing the actual coordinates of discrete points on the profile being
verified with theoretical points that are determined for each of the radii of
the main circumferences. The instrument consists of two interferometer devices
that measure angular and linear displacement. The angular interferometer has
two actuating arms and no reference mirror, and also contains two system of
compensators and angular reflectors. The linear relationship between the
1/2

USSR

GAFANOVICH, G. YA. and GATSKALOVA, T. G., Ukr. resp. nauch.-tekhn. konf., posvyashch. 50-letiyu metrol. sluzhby USSR, 1972, pp 196-197

displacements of the angular reflectors and the rotation of the involute cam is provided by a combination of a disk and rotary rulers. The interferometer that measures the radius vector is built according to the design of the Michaelson interferometer, and includes a device that makes it possible to equate the intensity of the rays reflected from the surface being investigated and from the reference mirror. The unit operates with a colorless light source, but can also operate in monochromatic light. It enables sample involute cams with main circumference radii of 35 to 150 mm to be verified. Surface verification error is on the order of 0.5-1 micron. The use of the interferometer method to verify and certify the involute makes it possible to provide the upper branch of a verificatory system for involute gear wheels and to reduce the measurement of the involute to the measurement of linear and angular values, which is presently done with an adequate degree of accuracy. It also makes it possible to connect the system by which measurement units are transmitted during the measurement of gear wheels, when involute wheels are concerned, with the upper branches of verificatory systems for end measures of length and angular measures, or directly with the standard light wave length.

2/2

- 60 -

90933v   Adsorption behavior of crystalline polyester and
polyamides in a wide temperature range. Bogaevskaya, T. A.;
Gatovskaya, T. V.; Kargin, V. A. (Fiz.-Khim. Inst. im. Karpova,
Moscow, USSR). Vysokomol. Soedin., Ser. A 1970, 12(1), 243-7
(Russ). The adsorption properties of poly(ethylene sebacate) (I),
polycaprolactam (II), and hexamethylenediammonium adipate-
hexamethylenediammonium sebacate-II copolymer (III) were
investigated at 30-225°. The adsorption of EtOAc by I films was
described by hyperbolic isotherms, indicating a strong interaction
between I and EtOAc leading to increased flexibility and mobili-
ty of the individual structural elements. Significant structural
changes were detected at the same temp. at which "capillary con-
densation" of the sorbate vapors is obsd. Structural transforma-
tions in this case also apparently occurred via melting of material
with low ordering. Decompn. of the supramol. structure occurred
at >95°. The melt of the cryst. polymer was not a homogeneous,
mol. dispersed system but contained ordered regions. Little ad-
sorption (<1%) of n-hexadecane by II was obsd. from 130-230°.

REEL/FRAME
19800593

AP0048828

indicating that II is densely packed with few defects in its supra-
mol. structure. II adsorbed 8-9% n-decyl alc. (IV) at 130-225°,
indicating weak interaction between II and IV. "Capillary con-
densation" was not obsd. with II apparently because of its homo-
geneity and lack of flaws. III adsorbed IV much more than II at
all temps. (130-225°), indicating that it had more defects in its
supramol. structure and had more loosely packed structural ele-
ments.   DBJR

19800594

USSR

GATUN, A. P.

"Control of One Class of Stochastic Systems"

Teoriya spuchayn. protsessov [The Theory of Random Processes], No 1,
Kiev, Nauk. Dumka Press, 1973, pp 44-51 (Translated from Referativnyy
Zhurnal - Kibernetika, No 8, 1973, Abstract No 8 V77 by the author)

Translation: The problem is studied of control of stochastic systems
which can undergo random shocks, while their trajectories in the phase
space may be discontinuous. A theorem is proven of the the existence
of the optimal control of these systems, minimizing a certain functional.
The result is applicable to stochastic systems which are linear relative
to the phase coordinates and control parameter.

1/1

USSR

GATUN, A. P.

"The Existence of the Optimal Control for One Class of Stochastic Differen-
tial Equations"

Teoriya Veroyatnostey i mat. Stat. Mezhved. Nauch. sb. [Theory of Pro-
babilities and Mathematical Statistics, Interdepartmental Scientific
Collection], 1972, No 7, pp 23-27 (Translated from Referativnyy Zhurnal,
Kibernetika, No 1, 1973, Abstract No 1 V117 by the author).

Translation: A theorem is presented on the existence of the optimal con-
trol for the solution of the stochastic differential equation

$$d\xi(t) = \alpha_0(t, \theta_t\xi)\, dt + \alpha_1(t, \theta_t\xi)\, du\,(t) + \beta\,(t, \theta_t\xi, dt);\ t \geqslant 0,$$

minimizing a certain non-negative semicontinuous functional.

1/1

USSR

GATUN, V. P., et al.

$\eta_n, \ldots,$ the states of which are points G and the transition probabilities of which are determined by the equation

$$P\{\eta_{n+1} = z + z_i / \eta_n = z\} = p_i(z).$$

2/2

1/2   025   UNCLASSIFIED   PROCESSING DATE--30OCT70
TITLE--STUDY OF A RELAY SYSTEM FOR FLIGHT VEHICLE STABILIZATION -U-

AUTHOR-(02)-GAUSHUS, E.V., SMOLYANIANOV, N.D.

CCUNTRY OF INFO--USSR

SOURCE--AKADEMIIA NAUK SSSR, IZVESTIIA, MEKHANIKA TVERDOGO TELA, MAR.-APR.
1970, P. 5-13
DATE PUBLISHED-------70

SUBJECT AREAS--AERONAUTICS, PHYSICS

TOPIC TAGS--MOTION STABILITY, DIFFERENTIAL EQUATION SYSTEM, PERIODIC
MOTION, FLIGHT MECHANICS

CONTROL MARKING--NO RESTRICTIONS

DOCUMENT CLASS--UNCLASSIFIED
PROXY REEL/FRAME--2000/1503   STEP NO--UR/0484/70/000/000/0005/0013

CIRC ACCESSION NO--AP0125131
                            UNCLASSIFIED

CIRC ACCESSICN NO--AP0125131
ABSTRACT/EXTRACT--(U) GP-0- ABSTRACT. STUDY OF THE DYNAMICS OF MOTION OF
A FLICHT VEHICLE ABOUT A CENTER OF MASS WITH A RELAY STABILIZATION
SYSTEM THE LINEAR PART OF WHICH IS DESCRIBED BY AN INCOMPLETE THIRD
ORDER DIFFERENTIAL EQUATION CONTAINING ONLY THE HIGHEST DERIVATIVE.
USING THE METHOD OF POINT TRANSFORMATIONS AND THE THEORY OF
BIFURCATIONS, AN ANALYSIS IS MADE OF THE CONTROL IN THE CASE OF AN IDEAL
RELAY CHARACTERISTIC WHEN THE SYSTEM IS ACTED UPON BY A CONSTANT
PERTURBING MOMENT. ALL THE SIMPLEST PERIODIC MOTIONS EXISTING IN THE
SYSTEM ARE DETERMINED, AND THEIR STABILITY AND PARAMETER DEPENDENCE ARE
INVESTIGATED. THE ABSENCE OF COMPLEX LIMIT CYCLES IS PROVEN. A REGION
OF ATTRACTICN OF STABLE EQUILIBRIUM POSITION IS FOUND IN THE PHASE
SPACE.

UNCLASSIFIED

USSR   UDC: None

GAUSHAS, E. V. and SMOL'YANOV, N. D.

"A Study of a Relay System For Stabilization of Aircraft"

Moscow, Mekhanika Tverdogo Tela, No 2, Mar/Apr 70, pp 5-13

Abstract: A rigorous mathematical analysis is given of the effect of a steady-state disturbance moment on the flight dynamics of an aircraft. A relay system having idealized stabilization characteristics is assumed, and the disturbance vector is also assumed to be constant. The linear portion of the stabilization system is shown to be expressible as a third order differential equation. Solutions are obtained for all possible simple periodic motions, and stability is calculated as a function of the aerodynamic parameters in effect. Equations and graphical solutions are preented which show the possible combinations of stable and unstable aerodynamic conditions, both of the steady-state and periodic types, that may occur. The analysis is applicable to determination of course stabilization for aircraft, trajectory variation and maneuvering of space vehicles, and related in-flight problems.

1/1

Acc. Nr: AP0048374   Abstracting Service: Ref. Code:
                       INTERNAT. AEROSPACE ABST.5-76 UR0293

A70-24307 #   Coupled control of the orientation of space
vehicles (O sviazannom upravlenii orientatsiei kosmicheskikh
apparatov). E. V. Gaushus and B. P. Skotnikov. *Kosmicheskie
Issledovaniia*, vol. 8, Jan.-Feb. 1970, p. 59-70. 6 refs. In Russian.
     Study of the dynamics of a space vehicle being oriented with
reference to three celestial bodies. It is assumed that two orientation
sensors, the signals of which are fed to the actuating elements, are
moving relative to the vehicle housing and that their position is
controlled by a third sensor which is rigidly mounted on the vehicle.
The problem of investigating plane vibrations is reduced to a
dynamic third-order system with two relays and is solved by the
method of point transformations. All the periodic motions existing
in the system are found, and their stability and dependence on the
system parameters are investigated.   A.B.K.

REEL/FRAME
19800082

1/2   010   UNCLASSIFIED   PROCESSING DATE--23OCT70
TITLE--INVESTIGATION OF THIRD ORDER RELAY DYNAMIC SYSTEM -U-

AUTHOR-(02)-GAUSHUS, E.V., SMOLYANINOV, N.D.

COUNTRY OF INFO--USSR

SOURCE--AVTOMATIKA I TELEMEKHANIKA, 1970, NR 3, PP 65-80

DATE PUBLISHED-------70

SUBJECT AREAS--MATHEMATICAL SCIENCES, MECH., IND., CIVIL AND MARINE ENGR

TOPIC TAGS--DYNAMIC SYSTEM, ELECTRIC RELAY, CONTROL THEORY, DIFFERENTIAL
   EQUATION SOLUTION

CONTROL MARKING--NO RESTRICTIONS

DOCUMENT CLASS--UNCLASSIFIED
PROXY REEL/FRAME--1988/1468   STEP NO--UR/0103/70/000/003/0065/0080

CIRC ACCESSION NO--AP0106224
                        UNCLASSIFIED

CIRC ACCESSION NO--AP0106224
ABSTRACT/EXTRACT--(U) GP-0- ABSTRACT. THERE IS CONSIDERED THE DYNAMICS
   OF A RELAY CONTROL SYSTEM THE LINEAR PART OF WHICH IS DESCRIBED BY A
   THRIDORDER DIFFERENTIAL EQUATION CONTAINING ONLY THE ELDEST DERIVATIVE.
   THE PROBLEM IS SOLVED BY THE METHOD OF POINT IMAGES AND THE METHOD OF
   THE THEORY OF BIFURCATION (1-2). ALL THE PERIODIC MOVEMENTS EXISTING IN
   THE SYSTEM ARE DETERMINED, THEIR STABILITY AND DEPENDENCE ON THE
   PARAMETER ARE INVESTIGATED.

UNCLASSIFIED

TITLE--TEMPERATURE SENSITIVITY OF YEAST MUTANTS SHOWING DEFICIENT
   RESPIRATION -U-
AUTHOR-(02)-GAUZE, G.F., KUZOVKOVA, L.I.

COUNTRY OF INFO--USSR

SOURCE--IZVESTIYA AKADEMII NAUK SSSR, SERIYA BIOLOGICHESKAYA, 1970, NR 2,
   PP 305-308
DATE PUBLISHED-------70

SUBJECT AREAS--BIOLOGICAL AND MEDICAL SCIENCES

TOPIC TAGS--YEAST, SACCHAROMYCES, RESPIRATION, MITOCHONDRION, TEMPERATURE
   SENSITIVE ELEMENT, BIOLOGIC MUTATION

CONTROL MARKING--NO RESTRICTIONS

DOCUMENT CLASS--UNCLASSIFIED
PROXY REEL/FRAME--1990/0951   STEP NO--UR/0216/70/000/002/0305/0308

CIRC ACCESSION NO--AP0109108
                        UNCLASSIFIED

CIRC ACCESSION NO--AP0109108
ABSTRACT/EXTRACT--(U) GP-0- ABSTRACT. TEMPERATURE SENSITIVITY OF THE
YEASTS SACCHAROMYCES CEREVISIAE DISPLAYING DEFICIENT RESPIRATION IS
OBSERVED ONLY UNDER AEROBIC CULTIVATION CONDITIONS AND STOPS IN CASE OF
ANAEROBIC GROWTH.   EVIDENTLY TEMPERATURE SENSITIVITY UNDER AEROBIOSIS IS
CONNECTED WITH A DEFECTIVE MITOCHONDRIA ORGANIZATION IN YEAST MUTANTS.
     FACILITY: RESEARCH INSTITUTE FOR EXPLORATION OF NEW ANTIBIOTICS,
USSR ACADEMY OF MEDICAL SCIENCES.

UNCLASSIFIED